

TECHNICAL REVIEW AND EVALUATION OF APPLICATION FOR SIGNIFICANT PERMIT REVISION NO. 37370

I. INTRODUCTION

Eurofresh, Inc., the Permittee, was issued Permit Number 27099, a Class II, synthetic minor operating permit on December 19, 2003, for its Bonita Greenhouse Site is located near Willcox in Graham County, Arizona. There had been three significant revisions to their operating permit so far. Presently, Eurofresh has five sites; each site has three boilers and two internal combustion engines.

The natural gas-fired boilers are rated at 35.87 to 41.74 MMBtu per hour (Maximum Burner input capacity). The standby internal combustion engines (ICEs) are fired by diesel fuel. Capacity of internal combustion engines vary from 827 HP to 1623 HP. The facility is a synthetic minor source with a limited Potential to Emit (PTE) of no more than 90 tons per year (TPY) of nitrogen oxides (NO_x).

The present significant permit revision application is for addition of a new Site #6. This site shall be similar to earlier sites with three boilers and two internal combustion engines. In order to stay below the major source threshold through this revision, Eurofresh has applied for a facility wide yearly cap on the natural gas consumption in the boilers and hp-hr for ICEs. Facility wide natural gas consumption for the boilers at all six sites will be limited to 1558.5 MMScf per year on a rolling twelve month total basis. Permittee will not operate the internal combustion engines for more than 3,453,080 hp-hr in any rolling twelve-month period.

Attainment Classification (Source: 40 CFR §81.303)

The source is in an area that is in attainment of the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants: particulate matter less than 10 microns (PM₁₀), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and carbon monoxide (CO).

II. FACILITY DESCRIPTION

Process Description

The boilers (3) at each site are used to heat water to 190 degrees Fahrenheit in a closed loop for radiant heating of the plants. The hot gases from the boilers are exhausted into the greenhouse during daylight hours through a perforated tube running into a distribution header along the base of the plants where they absorb carbon dioxide (CO₂).

III. POTENTIAL EMISSION CALCULATIONS

The annual emission calculations for the significant permit review process are based on natural gas cap that will be consumed in the boilers. Emission factor for NO_x has been taken as 0.0611 lbs/ MMBtu. This is a voluntary factor agreed to by Eurofresh. Emission factor for CO is based on the performance test data. Emission factors for VOC, SO₂, and PM₁₀ are based on Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources (AP-42). Emission factors for emission from ICEs are based on AP-42 factors.

Facility wide Potential to Emit (PTE)

The source has accepted a natural gas cap of 1558.5 MMScf per year in the boilers. The ICEs must not operate more than 3,453,080 hp-hr per year on rolling twelve month total basis. Table 1 detail out the facility-wide emissions at Bonita Facility with above assumptions.

Table 1: FACILITY-WIDE EMISSIONS

Pollutant	Boilers			Internal Combustion Engines			TOTAL Emission
	Emission						
	Factor lb/MMscf	lbs/yr	ton/yr	Factor lb/HP-hr	lbs/hr	ton/yr	
NO _x	62.32	97126.00	48.56	0.024	414.37	41.44	90.00
CO	0.663	1033.29	0.52	0.0055	94.96	9.50	10.01
SO ₂	0.6	935.10	0.47	0.00647	111.71	11.17	11.64
PM	7.6	11844.60	5.92	0.0007	12.09	1.21	7.13
PM ₁₀	7.6	11844.60	5.92	0.0007	12.09	1.21	7.13
VOC	5.5	8571.75	4.29	0.000705	12.17	1.22	5.50

IV. APPLICABLE REGULATIONS

The applicable regulations were identified by the agency as part of the application packet. If necessary, the source is required to list any additional regulations that may be applicable. Table 4 displays the applicable requirements for each piece of equipment under this proposed permit.

Table 4: Verification of Applicable Regulations

Unit	Date of Manufacture	Control Device	Rule	Verification
Boilers	1992, 1996, 1997, 1999, 2003, 2005,	Low-NO _x Burners	40 CFR § 60.40c	For steam generators constructed after June 9, 1989, with a design heat rate between 10 and 100 MMBtu/hr.
			40 CFR § 60.48.c(a)	Permittee shall submit notification of the date of construction and actual startup.
			40 CFR § 60.48c(g)	A record must be made and maintained of the amount of natural gas combusted in each boiler, each day.
			40 CFR § 60.48c(j)	The Permittee shall submit reports required each six-month.
Generators	1992, 1999, 2005.	None	A.A.C. R18-2-719.B	Heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet.
			A.A.C. R18-2-719.C.1	Maximum allowable particulate emissions in lb-mass per hour.
			A.A.C. R18-2-719.E	Opacity of emissions from generators is limited to 40%.
			A.A.C. R18-2-719.I	Permittee shall maintain records of the sulfur content in the fuel.
			A.A.C. R18-2-719.J	Permittee shall report to the Director any daily period when the sulfur content exceeds 0.8%.

V. PREVIOUS PERMITS AND CONDITIONS

A. Previous Permits

Table 5: Previous Permits

PERMIT NUMBER	DATE OF ISSUE
27099	December 19, 2003
31941	November 15, 2004
36094	February 2, 2006

B. Previous Permit Conditions-Permit #27099; as revised by Permit #31941 and 36094

Condition No.	Determination					Comments
	Add	Revise	Keep	Delete	Streamline	
Attachment A			x			
Attachment B, I			x			
II			x			
III.A			x			
III.B.1			x			
III.B.2		x				This condition has been revised and renumbered as III.B.1.b. This limits the amount of fuel being fired in the twelve-month period.
III.B. 3 to 8				x		Condition for operating hours for the boilers
III.C					x	Condition for Air Pollution Control Requirement relocated as Condition III.C.2.
III.D					x	Condition for Performance Testing has been streamlined and relocated as Condition III.C.4. Performance testing for CO has been removed since the emission of CO as per testing carried out is very low.
III.E.1		x				Condition for Notification has been revised and placed as Condition III.B.2.

Condition No.	Determination					Comments
	Add	Revise	Keep	Delete	Streamline	
III.E.2			x			Condition for gas flow meter(s) relocated as Condition III.B.3.a.
IV.A			x			Condition for Applicability
IV.B			x			Condition for Emission Limitation/Standards relocated as Condition IV.C
IV.C			x			Condition for Fuel Limitation relocated as Condition IV.B.1.
IV.D			x			Condition for Monitoring, Record Keeping, and Reporting Requirements has been relocated as Condition IV.B.3, IV.C.2, and III.D.2.

VI. MONITORING/RECORD KEEPING/REPORTING REQUIREMENTS

A, Natural Gas Fired Boilers

1. The Permittee is required to submit notification of the date of construction and actual startup to the Director and Administrator.
2. The Permittee is required to maintain records of the amount of natural gas combusted in each boiler, each day.
3. The Permittee must record the monthly fuel input at the close of each month for each of the boilers and calculate a rolling twelve month total for each boiler.

B. Internal Combustion Engines

1. The Permittee is required to record the monthly operating hp-hr at the close of each month for each of the ICEs and calculate a rolling twelve-month hp-hr total for ICEs. For the purpose of this provision, the Permittee shall assume that all ICEs are operated at full capacity. Records of operating hours can be maintained using the hour meters provided on the equipment if applicable.
2. The Permittee must conduct monthly surveys/observations of the emissions from the stacks of the internal combustion engine when in operation. If the emissions observed appear to exceed the standard, a certified Environmental Protection Agency (EPA) Reference Method 9 observation must be conducted.
3. The Permittee must record daily, the sulfur content and lower heating value of the fuel being fired in the internal combustion engines.
4. The Permittee must keep records of fuel supplier certifications.

VII. PERFORMANCE TESTING

A. Boiler Testing

1. The Permittee must conduct a performance test of one boiler from each site within 180 days of completion of tuning of boiler burners for low NO_x emissions.
2. The Permittee must test one boiler from each site every year. The boilers to be tested shall be chosen by the Director.
3. Performance testing requirements for CO have been removed from the permit based upon the results of previous tests conducted on boilers, which have shown the CO emissions at very low levels.

B. Internal Combustion Engine Testing

The internal combustion engine are designated to only be used for replacement power in case of interruption from the primary supplier and are limited to a maximum of 3,453,080 hp-hr per year. While they have the potential to emit significant amounts of NO_x, the limited operating hours and their history of limited use eliminates the need for performance testing. AP-42 emission factors are conservative and will serve in lieu of testing based on continued limited operation of the generators.

VIII. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
EPA	Environmental Protection Agency
ft	Foot or Feet
hp	Horsepower
hr	Hour
kW	Kilowatt
lb/hr	Pounds per Hour
lb/MMBtu	Pound per Million British Thermal Units
MMBtu/hr	Million British Thermal Units per Hour
NO _x	Nitrogen Oxide
NO ₂	Nitrogen Dioxide
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PTE	Potential-to-Emit
SO ₂	Sulfur Dioxide
TPY	Tons Per Year
VOC	Volatile Organic Compound